

## NOTES ON TRADESCANTIA VI

### OBSERVATIONS ON THE MECHANISM OF PIGMENT DEPOSITION

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Within a few hours of opening, the petals of Tradescantia L. (sensu strictu) become deliquescent, infolding on the similarly hydrolizing mass of stamens and filament hairs. The characterless globule produced cannot be reconstituted and, making a virtue of necessity, taxonomists have declared the flower to be of little diagnostic value.

Cytologists, on the other hand, cherish the large cellular stamen hairs (Kuster 1933). Unfortunately, though valuable for demonstration purposes, the self-sterility, poor germination and long generation have inhibited breeding experiments. However, use of Tradescantia as a monitor for radiation and chemical mutagenesis, indicated by color changes in the stamen hair cells (Grossman 1979) has led to increased interest in the genetics of flower color. Emmerling-Thompson and Nawrocky (1979) have studied the inheritance of flower color in hybrids between white flowered forms of the diploid species T. humilis Rose and T. subaspera Busy. They conclude that at least five independent loci govern flower color.

In addition to the loci which govern color there are other loci, more or less independent of the first, which determine the location of pigment deposition. White flowered Tradescantia (in the species found in the United States) are found in two forms: those in which all pigment is missing, the petals and stamen filaments and hairs being white; and those in which the petals are white but the stamen hairs and filaments retain their normal blue coloration. The first form we may term "albinistic"; the second "albiflora."

The photographs in Emmerling-Thompson and Nawrocky (1979) show clearly that their parent populations were albinistic in both species. Since they make no mention of any albiflora forms, the linkage between color and location was apparently unbroken in their specimens.

An interesting variation of this location linkage has turned up in the rather localized T. occidentalis (Britton) Smyth var. melanthera MacRoberts (1977). While the anther connectives of all other Tradescantia in the United States are either yellow like the anthers or only slightly darker, those of var. melanthera are a deep purplish brown. Recent collections of pink and white forms of this variety have shown that the dark anther connectives

result from deposition of the normal blue corolla pigment over the yellow of the connectives. The rose-pink forms had light brown anther connectives, noticeably darker than the anthers but much lighter than in the usual blue form, while the albinistic specimen had normal yellow connectives.

The depositional mechanism is apparently fairly easily transferred since specimens of T. hirsutiflora Bush growing among a population of var. melanthera had dark anther connectives but were otherwise normal specimens of that rather variable taxon.

T. occidentalis var. melanthera is the only variety of this widespread species which I have found in eastern Texas and western Louisiana. It forms extensive populations in a few areas unassociated with var. occidentalis which is common in central and western Texas. I have yet to find a mixed population.

Tradescantia has yet another disadvantage as a subject for inheritance studies: its species are not well delineated and their variation is poorly mapped. The existence of a variety with an easily detectable genetic difference may be of interest to anyone conducting breeding experiments or investigation susceptibility to radiation induced mutation.

#### Literature Cited

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